Index

Note: Page numbers of article titles are in **boldface** type.

ADOLESCENCE—
  clinical aspects and natural history of constitutional delay, 144–148
  constitutional delayed, **143–154**, 180–181
Adolescence, delayed, **143–154**
  diagnosis and differential diagnosis, 148–150
  treatment, 151–154
Adolescent growth spurt, 3–6
Adolescents, gynaecomastia in male, **157–169**
Adrenal steroids—
  circulating levels, 35
  in adolescent growth, 30–35
Adrenals, hormonally active tumours of the, 99
Adrenogenital syndrome, 96–98
Amenorrhoea, 90–103
  dysfunctional uterine bleeding in puberty and, **89–104**
  functional, 99–102
  genetic defects and abnormal differentiation associated with, 91–96
  iatrogenic, and other forms of induced, 102–103
  physiological, 103
Amygdala, 64–65
Androgen insensitivity, 218–219
Androgens, 31
Anti-oestrogens and anti-androgens, 181–183
Arrhenoblastomas, 98
Asherman's syndrome, 90

BLEEDING anomalies in ovulatory cycles, 104
Body shape, sex differences in, 6–7
Boys, reproductive organs and secondary characters in, 16–20
Breasts—
  adolescent development of, 7–9
  development in males, 19

CEREBRAL disorders, precocity and organic, 114
Congenital adrenogenital syndrome, 96–97
Corticosteroids in adolescent growth, 30–31
Cutaneous glands, age at functioning of, 14
Cyproterone acetate and precocity, 130–135

DWARFISM, hypopituitary, 150–151

ENDOCRINE laboratory findings in pubertal disturbances, **173–196**
Endocrine tumours, symptomatic gynaecomastia with, 166
Endometrial failure, 90
Endometrium, occult regression of the, 90
Extrahypothalamic factors and environment, 63–65
Extrahypothalamic structures related to sexual maturation, anatomy of, 62–63

FEMINISING tumours of the ovary, 99

GENITAL tract, abnormal differentiation of the, 90
Genitalia, duration of stages of development in males, 19–20
Girls, reproductive organs and secondary sex characters in, 7–16
Gonadal and adrenal steroid patterns during puberty, changes in the, **27–52**
Gonadal dysgenesis, 94–96
Gonadal failure, primary, 151
Gonadal steroid feedback, change of, 65–69
Gonadal steroids, 35–36
  circulating levels of, 38–45
  in experimental animals during pubertal growth, 50–52
Gonadotropin deficiency, isolated, 151
Gonadotropins—
  and gonadal steroids, relationship in male rats during pubertal growth, 50–52
  and LH-RH, physiological and clinical role in children, 73–78
  basal values of, 175–176

Gonadotropins—(*continued*)
episodic secretion of, 188
LH and FSH, 73–74
pubertal development and, 175–188
Growth—
interrelationship of breasts, pubic hair and menarche, 15–16
relationships between changes in different organs and systems in males, 20
sexual maturation in normal puberty and, **3–24**
Growth hormone deficiency, isolated, 180
Growth spurt, in adolescence, 3–6
Gynaecomastia—
aetiology, 159
androgen metabolism of breast tissue in, 162
binding proteins and, 162
diagnostic studies necessary in adolescents with, 168
differential diagnosis of, 167–168
drug-induced, 163–164
familial, 164–166
gestagens in, 162
histology of, 157
idiopathic, in puberty, 158–163
in adolescents, psychological problems of, 167
in male adolescents, **157–169**
Klinefelter's syndrome, 166
LH, FSH and prolactin in, 163
male pseudohermaphroditism and, 165–166
oestrogens in, 159–162
symptomatic, with endocrine tumours, 165
therapy, 168–169

HAIR, axillary and facial development of, 19
Hairless women syndrome, 91–94
Hamartomas, diencephalic, 112–114
Hilus cell tumours, 98
Hippocampus, 64
Hormonal increments, mean trends in, 46–48
Hormonal overlapping, 118
Hormone levels during normal and abnormal pubertal development, 175
Hormones—
longitudinal investigation of, 48–49
pituitary, during sexual development, 71
Hypergonadotropic hypogonadism, 77
versus sexual maturation, 77–78
Hypergonadotropism, 179–180
Hypogonadism, 179–181, 187–188
in males, 219
steroids and, 192–196
stimulation tests, 192–196
Hypogonadotropic hypogonadism, 180–181
Hypopituitarism, 219–220
Hypopituitary dwarfism, 150–151
Hypothalamic-pituitary axis and sexual maturation, 63–73
Hypothalamic-pituitary function during puberty, dynamics of, **57–79**
Hypothalamus—
anatomy of, 59–62
anterior, 65
mammillary region, 62
medial, 69–72
posterior, 72
preoptic region, 59–60
supraoptic region, 60–61
tuberal region, 62

IDIOPATHIC gynaecomastia in puberty, *see* Gynaecomastia
Idiopathic precocity, 115–116

JUVENILE bleeding, 103–104

KLINEFELTER'S syndrome, gynaecomastia and, 166

LH AND FSH, stimulation of by LH-RH, 74–77
LH-RH tests, clinical application of, 77–78
Luteinising hormone-releasing hormone (LH-RH), 184–188

MASCULINISING tumours of the ovary, 98–99
Menarche, age of, 11–14
Menstruation, silent, 90
Mental retardation, sex hormone treatment and, 220–221

OLFACTORY system, 63–64
Ovulatory cycles, bleeding anomalies of, 104
Ovarian tumours, 98, 99, 122

PENIS, development of, 17–18
Pineal body, 72–73
Precocious puberty—
gonadotropins and, 176–179
isosexual, 176
LH-RH and, 184
psychological correlates in, 208–212
steroids and, 190–191

Precocity—
classification, frequency, sexual distribution and heredity, 107–108
hormonal overlapping in, 116–117
idiopathic, 115–116
in cerebral organic disease, 112–114
symptoms of all forms of genuine, 108–112
Progestational agents, in precocity, 127–130
Prolactin levels, 71–72
Pseudohermaphroditism, gynaecomastia and male, 165–166
Pseudopubertas praecox, 119–124
adrenal, 123
types dependent on gonadotropin, 119–120
Pseudo-precocious puberty, 176–178
Psychological correlates of abnormal pubertal development, **207–221**
Psychological problems of gynaecomastia in adolescents, 167
Pubarche, premature, 124
Pubertal delay—
management of, 214–215
psychological correlates in, 212–215
Pubertal development—
changes in, 28–29
hormone levels during normal and abnormal, 175
psychological correlates of abnormal, **207–221**
Pubertal disturbances, endocrine laboratory findings in, **173–196**
Puberty—
effect of onset of on relationships between sexes, 20
induced, psychological correlates in, 215–221
Pubic hair, development of—
in boys, 19
in girls, 9–11

Reproductive organs—
age of development of, 14–15
secondary sex character in boys and, 16–20
secondary sex character in girls and, 7–16

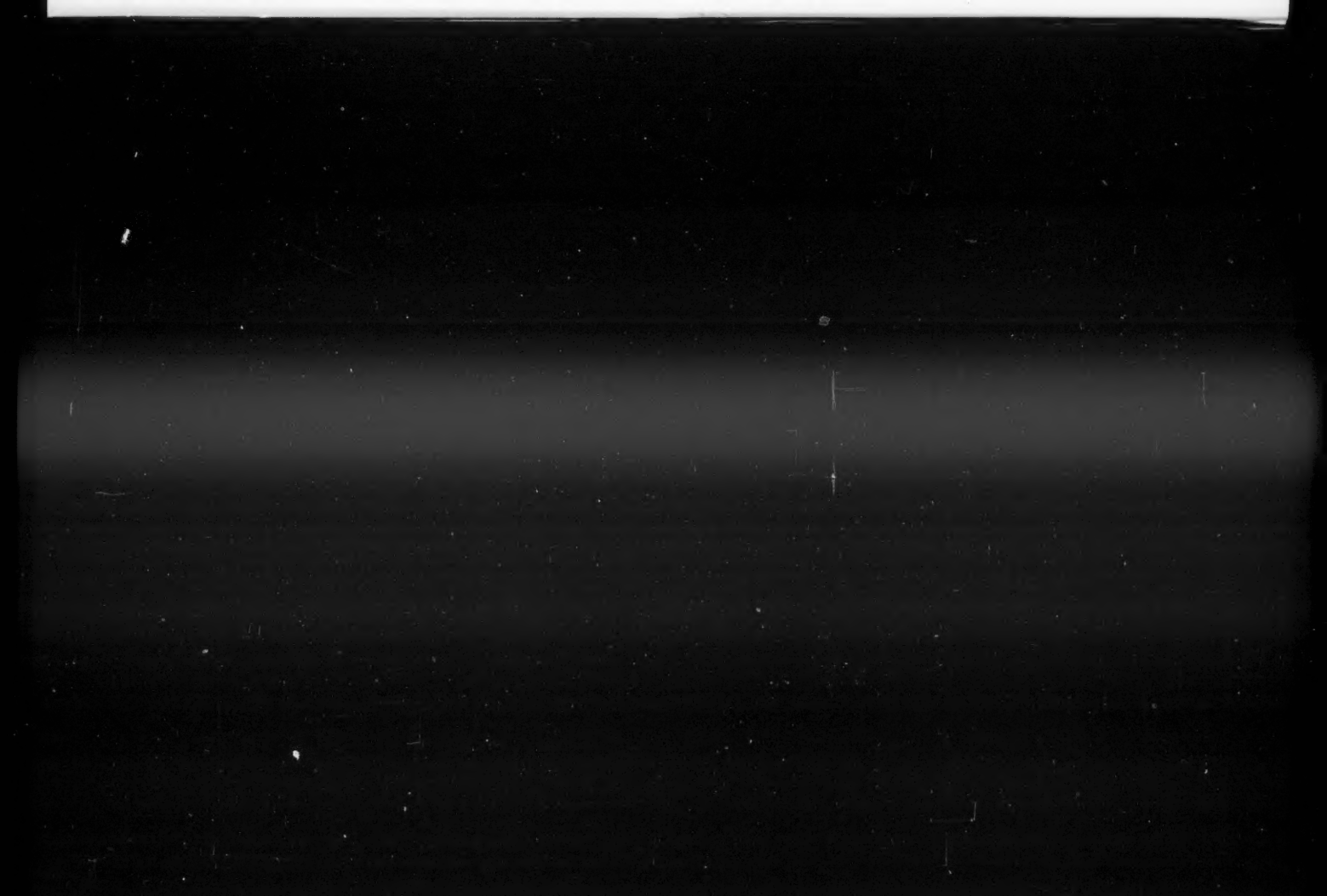
Scrotum, development of the, 17–18
Sex organs, accessory, growth of, 17
Sex steroid binding protein, 46
Sexual development, relationship between skeletal maturation and, 21–23
Sexual maturation, hypothalamic-pituitary axis and, 63–73
Sexual precocity, 78, **107–135** (*see also* Precocity)
diagnosis and differential diagnosis, 124–127
incomplete, 178–179
therapy, 127–135
Skeletal maturation and sexual development, relationship between, 21–23
Steroid hormones—
during pubertal development, 30–49
secretion and peripheral conversion of, 29–30
Steroids—
basic levels of, 189
pubertal development and, 188–196

Testicular feminisation syndrome, 91–94, 218–219
Testicular tumours, 120–122
Thelarche, premature, 123–124
Tropic hormones, tumours producing, 99
Tumours—
hormonally active, 98–99
ovarian, 98, 99, 122
steroid-producing, 120–123
Turner's syndrome, 216

Urinary excretion—
of adrenal steroids, 31–34
of gonadal steroids, 36–38
Uterine bleeding, dysfunctional, 103–104

Visual system, 64

Weil–Albright–McCune–Sternberg syndrome, 118



Index

Note: Page numbers of chapter titles are in **boldface** type.

ADDISON'S disease, **379–434**
  age incidence of, 382–383
  causes of, 380–381
  cell-mediated immunity to adrenal in, 392–394
  clinical features of, 383
  clinical significance of autoimmunity in, 421
  diagnosis of, 383
  general immunological function in, 394
  idiopathic—
    aetiology of autoimmunity in, 427–428
    age incidence of, 382–383
    clinical and immunological overlap in, 394–420
    genetics in, 422–425
    histopathology of, 383–385
    mechanisms of autoimmunity in, 425–426
  sex incidence of, 382–383
Adjuvants, 244–245
Adnexal glands, autoimmunity to, 249
Adrenal, cell-mediated immunity to, 392–394
Adrenal cells, autoantibodies to, 441–442
Adrenalitis—
  diffuse lymphocytic, 383–385
  experimental allergic, 250–252
  focal lymphocytic, 385
  immunological studies of in experimental animals, 385–387
Allergy, to seminal plasma, 490
Anaemia, pernicious, 416–417
Antibodies, 232–233
  adrenal, in patients' serum, 387–391
  cytotoxic, 476–479
  gastric, significance of in patients with thyroid disease, 364–368
  sperm, relationship in serum and seminal plasma, 480–481
  to non-pancreatic antigens, 437–442
  to pancreatic hormones, 442–445
Antigen(s), adrenocortical, characteristics of, 392
  -antibody systems—
    microsomal, 273
Antigen(s) (*continued*)
    thyroid, 268–279
  comparison of gastric with thyroid, 363–364
  histocompatibility, in patients with thyrogastric disease, 373
  insulin, 452–455
  non-organ-specific, 474
  serum antibodies to non-pancreatic, 437–442
  spermatozoa, 473–474
Artificial tolerance, 235–236
Aspermatogenesis, autoimmune, 484–486
Atrophic gastritis—
  association of autoimmune thyroid disease with, **351–377**
  autoimmune achlorhydric, natural history of in patients with autoimmune thyroid disease, 369–371
  clinical associations with autoimmune thyroid disease, 359–363
  experimental allergic, 250
  immunological studies in, 352–359
Autoallergic orchitis, 248–249
Autoantibodies, 243
  sperm, cause of formation of, 482–483
  thyroglobulin, 437–439
  to adrenal cells, 441–442
  to gastric intrinsic factor, 441
  to thyroid and gastric parietal cytoplasm, 439–441
Autoantigens, 242–243
Autoimmune aspermatogenesis, 484–486
Autoimmune disease, 241–242
  experimental induction of, **243–253**
  models of, 245–253
  spontaneous development in animals, **253–261**
Autoimmune disorders, clinical association with diabetes, 435–437
Autoimmune endocrine disease, experimental animal models in, 241–266
Autoimmune mechanisms, cell-mediated, studies of in diabetes mellitus, 445–456

Autoimmune thyroid disease—
association of atrophic gastritis with, **351–377**
K cells in, 300–306
T cells in, 288–300
Autoimmunity, **229–239**, 241–242
in the pathogenesis of endocrine exophthalmos, **341–350**
spontaneous, 234–235
thyroid and gastric, familial association of, 371–372
thyroid—
humoral and genetic aspects of, **267–285**
population studies of, 279–282
to sperm in infertility, **473–496**
to sperm in men, 475–484

B CELLS, 446–448

CA2, 274–275
Cancer of the thyroid, relationship of to autoimmune thyroiditis, 279
Cell-mediated autoimmune mechanisms in diabetes mellitus, 445–456
Cell-mediated immune reactions to retroorbital tissue, 344
Cell-mediated immunity, 334–335
in thyroid disease, **287–318**
Cells, interaction between, 232
Cell surface antigen, 274–275
Cellular immunity, 479–480
Cytotoxic antibodies, 476–479

DIABETES mellitus, 418–419, **435–471**
autoimmunological aspects of, **435–471**
clinical association with autoimmune disorders, 435–437
histocompatibility (HL-A) antigen typing in, 456
immunological abnormalities in relation to the complications of, 462–463
migration inhibition studies in, 448–452
pathology of the pancreas in, 456–460
serum antibodies to non-pancreatic antigens in, 437–442
serum antibodies to pancreas and pancreatic hormones in, 442–445
studies of cell-mediated autoimmune mechanisms in, 445–456
viral infection and autoimmunity in, 460–462

EXOPHTHALMOS, endocrine, autoimmunity in the pathogenesis of, **341–350**

FERTILITY, prognosis of patients with sperm agglutinins, 481–482

GASTRIC antibodies, significance of in patients with thyroid disease, 364–368
Gastric antigens, comparison with thyroid antigens, 363–364
Gastric intrinsic factor, autoantibodies to, 441
Genetic correlations, 245
Graves' disease—
pathogenesis of, 333–335
relation of LATS and human-specific thyroid stimulator in, **319–339**

HASHIMOTO'S disease, 275–277
Hashimoto goitres, follow-up of, 277–278
HL-A antigen, histocompatibility typing with, 456
Human-specific thyroid stimulator, **319–339**
evidence for, 333
Hypoparathyroidism, **379–434**, 419–420
Hypophysitis, experimental allergic, 252

IMMUNE complexes, in thyroid disease, 306–310
Immune response—
general cellular, and circulating lymphocyte sub-populations, 446–448
undesirable, 233–234
unsuccessful, 233–234
Immune system, 229–230
Immunofluorescence test, 479
Immunoglobulins, thyroid stimulating (*see also under* LATS), 333–334
Infertility, female, 249
immunity to sperm in, **473–496**
Insulin antigens, studies of lymphocyte transformation in response to, 452–455
Insulitis, production of in experimental models, 459–460
Interactions between cells, 232
Isoimmunity—
to sperm in infertility, **473–496**
to sperm in women, 486–490

K CELLS, in autoimmune thyroid disease, 300–306

LATS—
actions of, 323–325
antibody nature of, 325–328
clinical significance of, 321–322

LATS (*continued*)
detection of, 319–321
incidence of, 321–322
interaction of with thyroid tissue, 326–327
origin of, 323
protector, 328–332
assay of, 329–330
clinical significance of, 330–332
discovery of, 328–329
nature of, 332
relation of to Graves' disease, **319–339**
Lymphocytes, 231
subpopulations of, 446–448
transformation in response to insulin antigens, 452–455
Lymphoid cells, 243–244

MICROSOMAL antigen/antibody systems, 273
Migration inhibition studies in diabetes mellitus, 448–452
Mitogen, response to non-specific, 446
Myositis, 342–344

NON-SELF, as distinct from self, 234–237

ORCHITIS, autoallergic, 248–249
Ovarian failure—
and hypoparathyroidism, **379–434**
autoimmune, treatment in Addison's disease and, 421–422
premature, 397–410

PANCREAS, pathology of in diabetes mellitus, 456–460
Pancreatic hormones, serum antibodies to, 442–445
Pancreatitis, experimental autoimmune, 250
Parathyroiditis, experimental autoimmune, 248
Pernicious anaemia, 416–417

REPRODUCTIVE tract, experimental autoimmune disorders of, 248–249
Retro-orbital tissue—
cell-mediated immune reactions to, 344
stimulation of, 344–347

SECOND colloid antigen, 274–275
Self, as distinct from non-self, 234–237
Self-reactive T cells, 237–238
Seminal plasma, allergy to, 490
Sperm—
agglutinins—
antibody nature of, 479

Sperm (*continued*)
prognosis of fertility of patients with, 481–482
antibodies, relationship in serum and seminal plasma, 480–481
antigens of, 473–474
autoantibodies, cause of formation of, 482–483
autoimmunity to in men, 475–484
isoimmunity to in women, 486–490
Suppressor mechanisms, 238

T CELLS, 446–448
in autoimmune thyroid disease, 288–300
self-reactive, 237–238
Terminal tolerance, 236–237
Testicular failure, autoimmune, 410–412
Thymitis, experimental autoimmune, 252–253
Thyroglobulin, 268–272
autoantibodies to, 437–439
Thyroid—
and gastric parietal cytoplasm, autoantibodies to, 439–441
antibody tests, clinical applications of, 275
antigen/antibody systems, **268–279**
antigens, comparison with gastric antigens, 363–364
autoimmune disease, 412–416
autoimmunity—
humoral and genetic aspects of, **267–285**
population studies of, 279–282
disease, autoimmune—
K cells in, 300–306
T cells in, 288–300
disease, cell-mediated immunity and immune complexes in, **287–318**
disease, significance of gastric antibodies in patients with, 364–368
disorders, antibody titres in, 275–278
Thyroiditis, atrophic, 278
autoimmune, relationship of to cancer of the thyroid, 279
experimental autoimmune, 245–247
multifocal, 278–279
Thyroid stimulating immunoglobulins (*see also under* LATS), 333–334
Tolerance—
artificial, 235–236
terminal, 236–237

VASECTOMY, immunological implications of, 483–484
Viral infection, and autoimmunity in diabetes mellitus, 460–462

Index

Note: Page numbers of article titles are in **boldface** type.

ADRENAL function, in the testicular control system, 537
Adrenarche, 580–582, 590, 606
Adulthood, testosterone secretion during, 509
Adult male—
  clomiphene citrate test in, 553–554
  gonadotrophin-releasing hormone test in, 558
  human chorionic gonadotrophin test in, 561
Aetiology of male sexual disorders, 628–632
Alphafetoprotein, 673–674
Androgens, **503–520**
  binding of to plasma proteins, 509–511
    biological activity, 510
    physiological role, 510
  biological action of, 513–515
    in baldness, 514
    in erythropoiesis, 514
    in growth effects in non-sexual tissues, 513
    in growth effects in sexual tissues, 513
    in the prostate, 514–515
    method of, 514
    on behaviour, 514
    on enzyme systems and secretions, 514
    on hair growth, 513–514
    role of 5α-dihydrotestosterone in, 514
  biological activity of, 516
  deficiency, hormone replacement for, 613–614
  hormonal feedback effects of, 531–532
  interpretation of measurements of, 549–551
  secretion of, programming effect of, 579–580
Δ_4 androstenedione, measurement of, 546–547
Anorchia, 599–600
Anterior pituitary—
  control of by the hypothalamus, 530–531
  in the control of testicular function, 523–525, 528–530
  in the control of the hypothalamus, 535–536
Anti-androgens, 516–517
Antifertility chemicals, operating via the epididymis, 645–652

BALDNESS, effects of androgens on, 514
Basal hormone levels, 547–552
  interpretation of, 549–552
  physiological considerations of, 547–549
Behaviour—
  effects of androgens on, 514
  hormonal effects on, 538
  sexual, disturbances of, **619–641**
Biopsy, testicular, 695–697
Biosynthesis, of testosterone, 504–508
Bonnevie–Ullrich syndrome, 601
Brain, sexual differentiation of, 526

CERVICAL nodes, extension of testicular tumours to, 677
Childhood, testosterone secretion during, 508–509
Chlorohydrins, 646–652
  antifertility effects of, 646–648
  metabolism of, 649–650
  mode of action of, 650–652
  structure/activity studies with, 648–649
Cholesterol, in biosynthesis of testosterone, 505–506
Clomiphene citrate test, 552–557
  indications for, 553
  procedure for, 553
  responses to, 553–557
    in cases of testicular failure, 557
    in hypopituitarism, 556
    in isolated gonadotrophin deficiency, 555–556
    in normal adult males, 553–554
    in pituitary tumour patients, 556
    in puberty, 554–555
Conjugation of steroid metabolites, 513

Contraceptive, male oral, progress towards, 643–663
Cryptorchia, 600–601
Cytotoxic drug therapy, infertility from, 612

DEVELOPMENT of the male, **569–596**
Deviance, sexual, 639–640
Differentiation of the male, **569–596**
5α-dihydrotestosterone (DHT)—
  measurement of, 546–547
  role of in androgen effects, 514

ENDOCRINOLOGICAL disorders, 695
Enzymes involved in testosterone synthesis, location and control of, 507–508
Enzyme systems, effects of androgens on, 514
Epididymis—
  antifertility chemicals operating via, 645–652
  steroidal approach to control of fertility via, 642–653
Epididymovasostomy, 705–707
Erythropoiesis, effects of androgens on, 514
Ethanol, effect of on sexual function, 610
Eunuchoidism, 597–610
Extralymphatic sites, testicular spread to, 677

FAMILIAL cerebellar ataxia, infertility and, 612
Fetal gonadal development, 570–571
Fetal life,testosterone secretion during, 508
Fetal maturation of the neuroendocrine axis, 575–576
Fetal sexual differentiation, 570–573
Fetal testis, role of in sexual differentiation, 571–573
Follicle-stimulating hormone (FSH)—
  chemistry of, 523–524
  measurement of, 546
    interpretation of, 549–551
  releasing hormone (FSH-RH), evidence for, 526–527
  secretion of, 524

GENETIC determination of sex, 570
Genital ducts, development of, 571
Genitalia, external, development of, 571
Germinal cell arrest, infertility from, 611
Gestation, hormonal changes during, 508, 575
Gonadostat, hypothalamic, maturation of, 579
Gonadotrophin deficiency—
  selective, 606–607
  single, 607–608
Gonadotrophin-releasing hormone (Gn-RH), 526–528
  measurement of, 547
  peptidases, 536
  release of, 528
Gonadotrophin-releasing hormone test, 557–560
  procedure for, 557–558
  responses to, 558–560
    in hypopituitarism, 558–560
    in isolated gonadotrophin deficiency, 558
    in normal adult males, 558
    in pituitary tumour patients, 558–560
    in puberty, 558
    in testicular failure cases, 560
Gonadotrophin secretion, pulsatile pattern of, 586
Gonads, development of, 570–571
Growth effects of androgens, 513
Gynaecomastia, 610

HAEMOCHROMATOSIS, hypogonadism and, 606
Hair growth, effects of androgens on, 513–514
Hormone measurements in investigating testicular disorders, 545–547
  methods used, 546–547
Hormone replacement therapy, 613–615
  for androgen deficiency, 613–614
  for oligospermia, 614–615
Human chorionic gonadotrophin (HCG), measurement of, 546
Human chorionic gonadotrophin test, 560–563
  responses to, 561–563
    in hypopituitarism, 563
    in isolated gonadotrophin deficiency, 563
    in normal adult males, 561
    in pituitary tumour patients, 563
    in puberty, 561
    in testicular disorder cases, 563
17β hydroxy-androgens, measurement of, 546–547
Hydroxylation, mechanism of in testosterone biosynthesis, 506
17-hydroxyprogesterone, hormonal feedback effects of, 533
Hyperprolactinaemia, hypogonadism and, 605
Hypogonadism—
  medical aspects of, **597–618**
  neurological disease and, 612–613

Hypopituitarism, 604–605
clomiphene citrate test in, 556
gonadotrophin-releasing hormone test in, 558–560
human chorionic gonadotrophin test in, 563
Hypothalamus—
anatomy of, 526
control of by the pituitary, 535–536
in the control of testicular function, 525–528
in the control of the pituitary, 530–531
releasing hormones from, 526–528
sexual differentiation of, 526

IDIOPATHIC precocious puberty, 589
Immunological abnormalities, 695
Impotence, 619–639
treatment of, 635–639
Infertility—
medical aspects of, 611–612
surgical aspects of, **693–709**
Inhibin, in the control of testicular function, 533–534
Interstitial cell tumour, 673
Intrahypothalamic control mechanisms, 536
gonadotrophin-releasing hormone peptidases, 536
ultrashort loop feedback, 536
Intrathoracic node involvement with testicular tumours, 676
Isolated gonadotrophin deficiency—
clomiphene citrate test in, 555–556
gonadotrophin-releasing hormone test in, 558
human chorionic gonadotrophin test in, 563

KALLMAN'S syndrome, selective gonadotrophin deficiency and, 606–607
Klinefelter's syndrome, 597–599

LAURENCE–Moon–Biedl syndrome, 608
Liver disease, feminisation of the male with, 609
Luteinizing hormone (LH)–
chemistry of, 523–524
-FSH-RH, *see* gonadotrophin releasing hormone, measurement of, 546
interpretation of, 549–551
secretion of, 524

MALE, development and differentiation of, 569–596
Maturation of the neuroendocrine axis, 575–578
fetal period of, 575–576
perinatal period of, 577–580
prepubertal period of, 580–582
pubertal period of, 582–587
Mumps orchitis, 612
Myotonic dystrophy, 612

NECROSPERMIA, 695
Negative feedback control mechanism—
establishment of, 576
low set-point in, 582
maturation of, 585–586
Neuroendocrine axis, maturation of, 575–587
Neurological disease, hypogonadism and, 613–613

OESTRADIOL—
hormonal feedback effects of, 533
measurement of, 546–547
interpretation of, 549–551
Oligospermia, hormone replacement therapy for, 614–615
Oral contraceptive, male, progress towards, **643–663**
Orchidectomy, in treatment of testicular tumours, 677–678
Orchiopexy, 700–702

PERINATAL period, hormonal changes during, 577–578
Pituitary tumour patients—
clomiphene citrate test in, 556
gonadotrophin-releasing hormone test in, 558–560
human chorionic gonadotrophin test in, 563
Positive feedback mechanism, 586
Prader–Labhart–Willi syndrome, 608
Pregnenolone, conversion of to testosterone, 506
Prepubertal period, hormonal changes during, 580
Prolactin, 524–525
in the control of testicular function, 525–528
measurement of, 546
interpretation of, 551
-regulating hormones, 527–528
Prostaglandins, in testicular control systems, 538–539
Prostate, action of androgens in, 514–515
Pseudohermaphrodism—
complete male, 602
incomplete male, 603–604

Puberty—
abnormalities in maturation mechanisms during, 588
actions of sex hormones during, 582–583
adrenal, 580–582
clomiphene citrate test in, 554–555
delayed, 589–590, 606
disorders of, 588–590
dissociated, 590
gonadotrophin-releasing hormone test in, 558
human chorionic gonadotrophin test in, 561
idiopathic precocious, 589
mechanisms initiating, 587–588
metabolic changes during, 582–583
morphological changes during, 583–585
neuroendocrine axis during, 582–587
somatic growth during, 582–583
testosterone secretion during, 509
Pulsatile hormone secretion, 586

RETROPERITONEAL node dissection, treatment of testicular tumour by, 683–684

SEMINIFEROUS tubules, biosynthesis of steroids by, 523
Seminoma, treatment of, 678–681
Sertoli-cell only syndrome, 611
Sertoli cell tumour, 673
Sex hormone-binding globulin (SHBG)—
effects of hormones on the concentration of, 511
in testicular control systems, 538
measurement of, 547
interpretation of, 551–552
Sexual deviance, 639–640
Sexual differentiation—
fetal, 570–573
of the brain, 526
role of fetal testis in, 571–573
Sexual difficulty in man, assessment of, 632–635
Sexual disorders, male, aetiology of, 628–632
Sexual function, effect of ethanol on, 610
Sexuality, the nature of, 620–625
Sexual physiology, normal, 625–628
Somatic growth, in the pubertal period, 582–583
Spermatogenesis, 522
inhibition of, 654–659
pituitary hormones in the control of, 528–529
Spinal cord damage, infertility and, 613
Steroidal control of fertility, via the epididymis, 652–653
Steroidogenesis, 522
pituitary hormones in the control of, 529–530
Steroids—
biosynthesis of by seminiferous tubules, 523
in the inhibition of spermatogenesis, 654–659
intratesticular secretion of, 523
testicular secretion of, 522–523
Stimulation tests, in the investigation of testicular disorders, 552–563
clomiphene citrate test, 552–557
gonadotrophin-releasing hormone test, 557–560
human chorionic gonadotrophin test, 560–563
Surgical aspects of infertility, **693–709**

TERATOMAS—
differentiation in, 670–671
malignant, treatment of, 681–683
stage IV testicular, treatment of, 684–688
Testicular atrophy, severe bilateral, 693–695
Testicular biopsy, 695–697
Testicular control system—
adrenal function and, 537
integration of, 537–539
Testicular disorders, investigative procedures in, **545–568**
basal hormone levels, 547–549
hormone measurements in, 545–547
interpretation of basal measurements in, 549–552
stimulation tests in, 552–563
Testicular failure—
clomiphene citrate test in, 557
gonadotrophin-releasing hormone test in, 560
human chorionic gonadotrophin test in, 563
Testicular function—
control of in the adult, **521–543**
components of, 521–528
effect of age on, 608–609
pituitary control of, 528–530
Testicular secretion—
control of in infancy, 578
effect of on gonadotrophin regulation, 531–534
fetal, control of, 575–576
of steroids, 522–523
Testicular tumours, **665–692**
animal models of, 670
cellular origin of, 668–670
clinical staging of, 675
epidemiology of, 668
index substances in, 671–673

Testicular tumours (*continued*)
investigation of patients with, 674–675
predisposing factors and, 666–668
previous history and, 666–668
primary, occult, 671
spread of, 675–677
treatment of, 677–688
Testis—
control of function of, 521
in the control of testicular function, 531–535
at the hypothalamic level, 534
at the pituitary level, 535
Testosterone—
binding, measurement of, 511
biosynthesis of, 504–508
control of enzymes for, 507–508
from pregnenolone, 506–507
location of enzymes for, 507–508
mechanism of hydroxylation in, 506
side-chain cleavage of cholesterol in, 505–506
substrate for, 504
measurement of, 546–547
metabolism of, 511–513
conjugation in, 513
production, measurement of, 509
secretion of, 508–509
at puberty, 509
during fetal life, 508
in infancy and childhood, 508–509
in the adult, 509
Tumours, testicular, **665–692**

ULTRASHORT loop feedback in the hypothalamus, 536

VARICOCOELECTOMY, 697–699
Vas deferens, congenital bilateral absence of, 695
Vasovasostomy, 702–705

WERNER'S syndrome, 608